Remarks

Reconsideration of the present application, as amended, is respectfully requested.

Claims 1–11, 13–22, and 24–36 are pending in this application. Independent claims 1, 11, 17, 22 and 27 were amended to better describe and point out the applicants' invention. Dependent claims 6 was amended to correct the omission of a period at the end of the claim and dependent claims 13 and 24 were amended to reflect the changes to their respective base claims.

Section 102 rejections

Claims 1, 4-11, 14-17, 20-22, 25, 26, 32, 33, and 36 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2002/0065907 (herein after "Cloonan"). The applicants disagree with the rejection and address their arguments with respect to the rejection of independent claims 1, 11, 17, 22, 27 and 32.

As amended, claim 1 recites a method including the steps of "determining a first value associated with the packet, the first value being one of a predetermined set of limited values, wherein the first value is determined using the destination information and the source information;" and "identifying a first service flow that is suitable for use to forward the packet, the first service flow being one of a set of service flows between the source and destination...." The Examiner purportedly finds the step of "determining a first value..." in Figs. 1 and 2a-2, paragraphs [0066] and [0068] of the cited Cloonan reference. The applicants have been unable to find such a value and request the Examiner to identify this "first value." The "first value" cannot be the packet header classifiers 231 since classifiers appear to contain "destination information and the source information" used to determine the "first value." See paragraph [0066]. The applicants also point out that the tables of Figs. 2A-2C show quality of service (QoS) parameters and packet head classifiers for service flows. What the Examiner considers a "first value" and how it is determined from the tables is not understood.

Given the questionability of the "first value" in the cited reference, the applicants have been unable to find any step of "identifying a first service flow...," as recited in claim 1.

Hence claim 1 is not anticipated by the cited Cloonan reference and should be allowed. If the Examiner feels otherwise, the applicants would appreciate an explanation of the reasoning behind the identification of sections of the cited Cloonan reference.

Regarding independent claim 11, the claim calls for:

> 11 (previously presented): A method for forwarding packets associated with a session upstream from a subscriber unit to a central access point, the method comprising:
>
> identifying a number (N) of available service flows between the subscriber unit and the central access point;
>
> sending a first packet of said session from the subscriber unit to the central access point on a first service flow included in the N available service flows;
>
> sending an (N-1)th packet of said session from the subscriber unit to the central access point on an (N-1)th service flow included in the N available service flows;
>
> sending an Nth packet of said session from the subscriber unit to the central access point on an Nth service flow included in the N available service flows; and
>
> sending a second packet of said session from the subscriber unit to the central access point on a second service flow included in the N available service flows, wherein the second packet is substantially in sequence behind the first packet and before the (N-1)th packet and Nth packet.

Purportedly these steps are found in the cited portions of the Cloonan reference. But as far as the applicants have been able to determine, these portions teach merely teach that different packets might be sent by different service flows. However, the claim calls for the packets to be associated with one session and the claim has been amended to make that clearer. As such, the cited Cloonan reference does not teach the invention as recited in claim 11 and should be allowed.

Independent claim 17 is a device claim with similar limitations to those of claim 1 and should be allowable for at least similar reasons as discussed above for claim 1.

Independent claim 22 is a device claim with similar limitations to claim 11 and should be allowable for at least similar reasons as discussed above for claim 11.

Independent claim 32 calls for:

> 32 A device for forwarding packets to a central access point, the device comprising:

a receiving component, the receiving component being arranged to receive a plurality of packets that are to be forwarded to a central access point by a DOCSIS protocol;

a plurality of service flow identifiers which are associated with a plurality of service flows of said DOCSIS protocol; and

a routing component, the routing component being arranged to receive the plurality of packets from the receiving component; the routing component further being arranged to provide a plurality of packets to the plurality of service flow identifiers of said DOCSIS protocol on a substantially round-robin basis.

Claim 32 recites, "a routing component, the routing component being arranged to receive the plurality of packets from the receiving component; the routing component further being arranged to provide a plurality of packets to the plurality of service flow identifiers of said DOCSIS protocol on a substantially round-robin basis." The Examiner cites several paragraphs which purportedly teach this limitation but does not explain how Cloonan discloses this element of the present invention. Paragraph 0005 describes how Quality of Service will change the current Internet routing model. Paragraph 0028 describes how a content provider may deliver new service levels to a cable modem termination system. Paragraph 0029 describes how a cable modem termination system modifies a service flow between itself and a cable modem. Paragraph 0039 introduces the DHCP relay agent and cable modem registration application found in a cable modem termination system. Paragraph 0059 describes the several states in which a DOCSIS 1.1 service flow may exist. Paragraph 0122 describes a management information base (defined in a read-only text file) which allows applications to retrieve information about service flows in a cable modem.

As far as the applicants have been able to determine, none of these paragraphs discusses any routing component, much less a routing component being arranged to receive packets from a receiving component, or one being arranged to provide packets to service flow identifiers on a round-robin basis. The applicants respectfully request that the Examiner explain how the cited portions of the Cloonan reference teach the limitations of the applicants' claim.

Claim 32 should be allowable.

Section 103 rejection

Claims 2, 3, 18, 19, and 27–31 were rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,223,222 (herein after "Fijolek") in view of the Cloonan reference. Of these claims, claim 27 is independent and calls for:

> 27. A device for forwarding packets to a central access point through a number of available service flows, the device comprising:
> a routing component;
> a hashing component, the hashing component being arranged to apply a hash function to information associated with a first packet to determine a value, wherein the routing component is arranged to provide the information associated with the first packet to the hashing component and the potential number of determined values at least equal to the number of available service flows; and
> a first service flow identifier, the first service flow identifier being associated with the value, wherein the hashing component associates the first packet with the first service flow identifier.

The Examiner identifies element 66 in Fig. 2 of Fijolek with the applicants' "hashing component. But element 66 is a DHCP layer, part of a network protocol, specifically the Dynamic Host Configuration Protocol. In contrast, a hashing component is a functional unit typically implemented in hardware, software, or firmware. One would understand that the protocol stack of Fig. 2 is an abstraction, not a diagram of a device or the steps of a method, therefore the applicants' understand the Examiner to refer to something in the cited DHCP layer.

This "something" creates the hashing value in the cited column 39, lines 36–65, i.e., "...the DHCP 66 giaddr-field 130 (FIG. 6) includes a hashing value for an IP 54 address of the CMTS 12 as 16 bits and the quality-of-service identifier for the requested quality-of-service and class-of-service parameters as 16 bits." Col. 39, lines 36-40. However, applicants' claim calls for a "device for forwarding packets to a central access point through a number of available service flows." In the applicants' reading of the Fijolek patent, the hashing value described has no apparent relation to the applicants' claim. The described giaddr field 130 is "a gateway/relay IP address field" of the CMTS, and the applicants do not see the application of "a hash function to information associated with a first packet." Rather, the applicants see a hash function applied to some information. An association with a particular packet is not described in the cited portions of the reference.

Furthermore, to make up for the lack of a "first service flow identifier," the Examiner combines Fijolek's DHCP layer hashing value generator with Cloonan's first service flow identifier. There is no suggestion and no reason to combine these references.

Even if the references were to be combined as suggested by the Examiner, the applicants are uncertain what the Examiner identifies with the applicants' "first service flow identifier." What element in Figs. 2A-2C of the Cloonan reference does the Examiner consider to be a service flow identifier? On the other hand, paragraph [0054] describes a 32-bit downstream service flow ID, or SFID, .a 14-bit upstream service flow ID, or SID. But why anyone would use the Fijolek DHCP layer hashing value generator to create 16 bit hashing value for a 14-bit upstream service flow identifier would appear to defeat the point of hash functions. On the other hand, if the Examiner were to apply the Fijolek DHCP layer hashing value generator to create 16 bit hashing value for a 32-bit downstream service flow ID, such an application would make more sense, but that is not what the applicants' claim requires.

Hence independent claim 27 should be allowable over the cited references.

Finally, dependent claims 2-10, 13-16, 18-21, 24-26, 28-31 and 33-36 should be allowed for at least being dependent upon their respective allowable base claims.

Conclusion

Therefore, in view of the amendments above and the remarks directed thereto, the applicants respectfully requests that all rejections be removed, that claims 1–11, 13–22, and 24–36 be allowed, and the case be passed to issue. If a telephone call would expedite the prosecution of this case, the Examiner is asked to telephone the undersigned..

Respectfully submitted,
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